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BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			CHATTERJEE, SANTANU	
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			3661	

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

1. The application filed on 03/09/2004 has been examined, and Claims 1 - 22 are pending.

Information Disclosure Statement

2. The prior art disclosed in the Information Disclosure Statement filed on March 9, 2004 has been considered.

Priority

3. Applicant's claim to foreign priority under 35 U.S.C. 119 is acknowledged. A certified copy of the Japanese language priority document *i.e.* Application No. JP2003-103693 filed on April 8, 2003 with the Japanese Patent Office, has been received with this application.

The following is a quotation of appropriate paragraphs of 35 U.S.C. 119 and 35 U.S.C. 365, that form the basis for the Office actions set forth under this section:

35 U.S.C. 119(b)(3): The Director may require a certified copy of the original foreign application, specification, and drawings upon which it is based, a translation if not in the English language, and such other information as the Director considers necessary. Any such certification shall be made by the foreign intellectual property authority in which the foreign application was filed and show the date of the application and of the filing of the specification and other papers.

35 U.S.C. 365(c): In accordance with the conditions and requirements of section 120 of this title, an international application designating the United States shall be entitled to the benefit of the filing date of a prior national application or a prior international application designating the United States, and a national application shall be entitled to the benefit of the filing date of a prior international application designating the United States. If any claim for the benefit of an earlier filing date is based on a prior international application which designated but did not originate in the United States, the Director may require the filing in the Patent and Trademark Office of a certified copy of such application together with a translation thereof into the English language, if it was filed in another language.

4. The U.S. Application requests a claim to convention priority, but does not include a certified copy of a translation in the English language of the priority Japanese document or

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its equivalent. The Japanese document is in the application stage and has not been published by the Japanese Patent Office, thus limiting the scope of translation possibilities. In order to obtain the convention priority date of April 8, 2003 on the U.S. application and such resulting patent, an English language translation of the priority Japanese document must be filed within the set period for reply to this Office action (see 35 U.S.C. 119(b)(3) and 35 U.S.C. 365(c) above).

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
6. The specification is objected to because of minor informalities, and appropriate corrections are suggested, as follows:
 - Paragraph [0089], Line 1: "... preset ...", should be amended to: "... present ...".
 - Paragraph [0089], Line 17: "... from vehicle F1 ...", should be amended to: "... from vehicle F2 ...".
 - Paragraph [0089], Line 19: "... when vehicle F1 ...", should be amended to: "... when vehicle F2 ...".

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7.1. ***Claim 15*** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The part of the claim that states: “ ... an intermediary target setting segment for identifying another intermediary terminal in any direction or the destination terminal when the determining segment determines that the condition is satisfied or for identifying another intermediary terminal in a first particular direction or the destination terminal when the determining segment determines that the condition is not satisfied ...”, is indefinite because the condition to be satisfied or not satisfied is not defined or particularly pointed out, also it is not pointed out if both the intermediary terminal and the destination terminal are included in the condition. The specification does not give any further clarification regarding this claim.

Further, ***Claim 15*** is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

- Between the claimed: “... and a first sending segment for sending the communication data to the intermediary terminal or the destination terminal as determined by the intermediary target setting segment ...”, and the rest of the claim.

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- Between the claimed: "... identifying another intermediary terminal in a first particular direction ..." with the destination terminal, other intermediary terminals or source terminal.

7.2. **Claims 16-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite, because they are all dependent claims that derive from the rejected base (i.e. independent) Claim 15 above. Thus, confusion would result in the Claims 16-20, from the reference to limitations of the indefinite base Claim 15.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohseni (US Pat. No. 5,910,179; hereinafter Mohseni), in view of Masood et al. (US Pat. No. 6,580,981; hereinafter Masood). It is noted that the Masood reference is cited by the applicant.

9.1. ***In regard to Claim 1.*** The claimed, '... method for relaying communication data from a source terminal to a destination terminal in a particular area via at least one intermediary terminal, ...', is disclosed by Mohseni as: "... Communication of information from a central station, acting as a source node, ... using various of the

destination nodes as intermediary transfer nodes, which receive information from the central station or from other predecessor intermediary nodes and which transfer the information to other intermediary transfer nodes or to final destination nodes ...” [see Abstract].

Further, in the claimed, ‘... repeating relaying the communication data between two of the terminals such that the communication data is relayed in a first particular direction from a first terminal to a second terminal, until the communication data reaches an intermediary terminal mounted in a vehicle in the particular area ...’, the repeat relaying is not disclosed by Mohseni, but in an analogous art Masood teaches that: “... In step 6 the first host computer determines the number of identical prepared messages which must be sent to reasonably insure one reaches the final destination and thereafter, sends one prepared message to each passing vehicle containing like host computers until this value is reached ...” [see Fig. 4 and Column 6, lines 36 - 41].

Further, the claimed, ‘... relaying the communication data in any direction, after the communication data reaches the intermediary terminal in the particular area; wherein the communication data reaches the destination terminal ...’, is disclosed by Masood as: “... As the second host computer is directed to send the stored message upon detection of infrastructure coverage, the second host computer directs the search for the presence of wireless infrastructure coverage in step 8. If infrastructure coverage is not detected, the second host computer directs the continued search for coverage in step 9 ...” [Column 6, lines 44 - 50].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosure of Mohseni with the teachings of Masood to relay communication data from a source to a destination terminal, by repeat relaying the communication from a first to a second terminal, till the communication data reached an intermediary terminal in a vehicle in the particular area, then relay the communication in any direction till the communication data reached the destination terminal.

10. Claims 2–10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohseni in view of Masood as applied to Claim 1 above, and further in view of Logsdon et al. (US Pat. No. 5,890,054; hereinafter Logsdon).

10.1. *In regard to Claim 2.* The claimed, ‘... first particular direction is from a source terminal of the communication data to a target position in the particular area, one of the intermediary terminals which receives the communication data being determined based upon the position of the source terminal and the target position ...’ is disclosed by Logsdon as: “... The intermediary mobile device forwards information destined to/received from the distressed mobile device to its intended destination ...” [Column 2, lines 22 - 24], and further that: “... mobile device multicasts a distress packet to any other mobile devices which may be in range of the distressed mobile device. All mobile devices which are within range will receive the distress packet. Those mobile devices which are willing to serve as an intermediary send a response packet back to the distressed mobile device indicating such. The distressed mobile device then selects an intermediary device from those mobile devices which have responded. The selected

mobile device is programmed to forward to the appropriate destination any packets which are received from or destined to the distressed mobile device ..." [Column 2, lines 29 - 40]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosures of Mohseni and Masood as applied to the rejection of Claim 1 above, with the teachings of Logsdon to determine the intermediary terminal based on the position of the source terminal and the target position.

10.2. *In regard to Claims 3 and 4.* The claimed '... target position is the center of the particular area ...' (Claim 3), and '... at least one vehicle in the particular area is the vehicle closest to the center of the particular area ...' (Claim 4), is disclosed by Masood as: "... FIGS. 1A and 1B are a conceptual block diagram illustrating the relationships between vehicle host computers and a central facility in a communication network 100 ..." [Column 3, lines 53 - 55], and further that: "... as shown in FIG. 1B, as the mobile vehicle host computer 103 enters the coverage area bounded by 106, protocol directs the transmission of the stored message received from host computer 102, to a final destination via infrastructure equipment 110 ..." [Column 4, lines 61 - 65]. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Masood to ensure that the target position is at the center of the particular communication area, and that one vehicle is close to it.

10.3. *In regard to Claim 5.* The claimed, '... communication data is relayed to an intermediary terminal in the first particular direction after the intermediary terminal is identified ...', is disclosed by Logsdon as: "... In turn, the distressed mobile device 124a

selects one of the mobile devices 124b and 124c to serve as an intermediary and transmits a packet thereto informing the particular mobile device 124 that it has been selected ...” [Column 5, lines 40 - 43]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosures of Mohseni and Masood as applied to the rejection of Claim 1 above, with the teachings of Logsdon to relay the communication data to an intermediary terminal after the intermediary terminal is identified.

10.4. *In regard to Claims 6, 7 and 8.* The claimed, ‘... communication data is relayed to an intermediary terminal in any direction through broadcasting without identifying the intermediary terminal ...’ (Claim 6), and ‘... broadcasting of the communication data is repeated a predetermined number of times of relaying ...’ (Claim 7), and ‘... broadcasting of the communication data is repeated as long as the intermediary terminal performing the broadcasting is in the particular area ...’ (Claim 8), is disclosed by Mohseni as: “...Communication of information from a central station, acting as a source node, to a plurality of destination nodes ... is implemented by using various of the destination nodes as intermediary transfer nodes, which receive information from the central station or from other predecessor intermediary nodes and which transfer the information to other intermediary transfer nodes or to final destination nodes ...” [see Abstract], further Mohseni states that: “... In the broadcast method, a flooding technique is described, wherein each node which receives a packet of information is required to transmit the packet to each of its neighboring nodes (except the node from which the packet was received) so that, sooner or later, by one route or another, the packet arrives at

its intended destination ...” [Column 2, lines 46 - 51]. The repeat relaying aspect is not disclosed by Mohseni, but in an analogous art Masood teaches that: “... In step 6 the first host computer determines the number of identical prepared messages which must be sent to reasonably insure one reaches the final destination and thereafter, sends one prepared message to each passing vehicle containing like host computers until this value is reached ...” [see Fig. 4 and Column 6, lines 36 - 41]. The claimed broadcasting as long as the intermediary terminal is in the particular area is not specifically disclosed by Mohseni or Masood, but in an analogous art Logsdon teaches that: “... the distressed mobile device multicasts a distress packet to any other mobile devices which may be in range of the distressed mobile device. All mobile devices which are within range will receive the distress packet. Those mobile devices which are willing to serve as an intermediary send a response packet back to the distressed mobile device indicating such ...” [Column 2, lines 29 - 35]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosures of Mohseni and Masood with the teachings of Logsdon to broadcast the communication data in any direction to an intermediary terminal by repeat broadcasting a predetermined number of times, and broadcast while the intermediary terminal is in the particular area.

- 10.5. *In regard to Claim 9.* The claimed, ‘... communication data relay to the destination terminal comprising a predetermined message and a planned driving route of the vehicle having a source terminal which has sent the communication data, and the destination terminal sends communication data containing a response message to the source terminal mounted in the vehicle traveling along the planned driving route ...’, is disclosed by

Logsdon as: "... Referring now to FIG. 2, information is transmitted between the various devices within the system 100 preferably in the form of packets 150. As shown, each packet 150 includes a synchronization field 152 which includes synchronizing bits which allow a device receiving the packet an opportunity to "lock on" to the packet as is conventional. A header field 154 follows the synchronization field 152 and includes information such as the length and type of the packet. For example, the header field 154 may indicate whether the packet is a conventional network communication packet or, for purposes of the present invention for establishing emergency routing, ... , A source address field 156 follows the header field 154 and includes the address of the device from which the packet 150 originated. Following the source address field 156, the packet 150 includes a destination address field 158 which holds the address of the device to which the packet 150 is ultimately destined. In the event the packet is being multicasted or broadcasted, the destination address in field 158 is set to some predefined address such as all "1's " so as to be recognized as such by all devices which receive the packet. A data field 160 in the packet 150 includes various information intended to be communicated to the receiving device in connection with normal communications. The packet 150 ends with a cyclical redundancy code (CRC) field 162 which serves as an error correcting field according to conventional techniques whereby a receiving device can determine if it has properly received the packet 150. ..." [Column 6, lines 27 - 56]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the teachings of Logsdon to make the source terminal communicate to the destination

terminal a predetermined message with a planned driving route of the vehicle, and for the destination terminal to send a response message back to the source terminal.

10.6. *In regard to Claim 10.* The claimed, ‘... relaying of the communication data containing the response message is repeated between two terminals such that the terminal that receives the response message containing communication data is located in a second particular direction until the response message containing communication data reaches an intermediary terminal near the source terminal in the vehicle traveling along the planned driving route and, after the response message containing communication data reaches the intermediary terminal near the source terminal, the response message containing communication data is relayed in any direction ...’, is disclosed by Masood as: “... the vehicle's host computer and transceiver will communicate the necessary information via a passing vehicle equipped with a like transceiver and host. In this case, using store-and-forward message passing protocol, the vehicle status information ... message would be stored in the transceiver of the passing vehicle until within range of infrastructure coverage, then transmitted from that vehicle through wireless infrastructure equipment to an appropriate destination ...” [Column 4, lines 40 - 48]. The claimed relay of the message in any direction is not specifically disclosed by Masood, but in an analogous art Logsdon teaches that: “... the distressed mobile device multicasts a distress packet to any other mobile devices which may be in range of the distressed mobile device. All mobile devices which are within range will receive the distress packet ...” [Column 2, lines 29 - 33]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosure of Masood with the teachings of Logsdon to repeat

relaying of the response message between two terminals in a second particular direction, and after the response message reaches an intermediary terminal near the source terminal to relay the response message in any direction.

11. Claims 11–14, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohseni in view of Masood, and in view of Logsdon as applied to Claim 10 above, and further in view of McCrady et al. (US Pub. No. 2001/0053699; hereinafter McCrady).

11.1. *In regard to Claims 11 and 12.* The claimed, ‘... second particular direction is towards an estimated driving position on the planned driving route, wherein the vehicle having the source terminal travels toward the estimated driving position with an estimated time of response arrival at which the response message containing communication data will approximately reach the source terminal, and an intermediary terminal which receives the response message containing communication data is determined based upon the position of the destination terminal and the estimated driving position ...’ (Claim 11), and the claimed ‘... destination terminal calculates the estimated driving position based on the driving speed of the vehicle having the source terminal and the time from when the source terminal sent the communication data ...’ (Claim 12), are disclosed in part by the combination of the disclosures of Mohseni and Masood and Logsdon as set forth in the reasoning for the rejection of Claim 2 above. However, the estimated driving position with an estimated time of response arrival, and calculation of the estimates is not disclosed by Mohseni or Masood or Logsdon, but in an analogous art McCrady teaches this as: “... the system of the present invention employs a two-way,

round-trip ranging signal scheme in which the time of arrive of the ranging signals is accurately determined to yield accurate range estimates used to calculate the position of a mobile radio via trilateration. A master or target mobile radio transmits outbound ranging pulses to plural reference radios which respond by transmitting reply ranging pulses that indicate the location of the reference radio and the pulse turn around time (i.e., the time between reception of the outbound ranging pulse and transmission of the reply ranging pulse). Upon reception of the reply ranging pulse, the master radio determines the signal propagation time, and hence range, by subtracting the turn around time and internal processing delays from the elapsed time between transmission of the outbound ranging pulse and the time of arrival of the reply ranging pulse ..." [see Paragraph 0029]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosures of Mohseni and Masood and Logsdon as applied to the rejection of Claim 2 above, with the teachings of McCrady to calculate the estimated driving position from when the source terminal sent the communication to the destination terminal, and have the vehicle with the source terminal travel to the estimated driving position such that the response message reaches the source, and determine an intermediary terminal based on the destination terminal and the estimated driving position.

11.2. *In regard to Claim 13.* The claimed, '... communication range of communication data relay in the first particular direction is longer than a communication range of communication data relay in any direction ...', is disclosed by McCrady as: "... the time of arrival (TOA) of ranging pulses transmitted between the master and reference radios is

used to determine the range to each reference radio, and a conventional trilateration technique is then used to determine from the range measurements the location of the master radio with respect to the reference radios ... ” [see Paragraph 0046]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosures of Mohseni and Masood as applied to the rejection of Claim 1 above, with the teachings of McCrady to determine that the communication range in the first particular direction is longer than the communication range in any other direction.

11.3. *In regard to Claim 14.* The claimed, ‘... communication data relay in the first particular direction differs from communication data relay in any direction in a channel, a communication speed, or a communication frequency ...’, is disclosed by McCrady as: “... where multiple ranging pulses are to be transmitted at different carrier frequencies, trials can be performed at plural frequencies. For example, if the carrier frequencies fall within a frequency band, calibration ...” [see Paragraph 0062]. It would have been obvious to one of ordinary skill in the art at the time of the invention, to combine the disclosures of Mohseni and Masood as applied to the rejection of Claim 1 above, with the teachings of McCrady to ensure that communication data relay in the first particular direction differs from communication data relay in any other direction in the channel, speed or frequency.

11.4. *In regard to Claim 21.* The claimed, ‘...A method for relaying a response message from a destination terminal to a source terminal via at least one intermediary terminal, ...’, is disclosed by Mohseni as: “... Communication of information from a central

station, acting as a source node, ... using various of the destination nodes as intermediary transfer nodes, which receive information from the central station or from other predecessor intermediary nodes and which transfer the information to other intermediary transfer nodes or to final destination nodes ...” [see Abstract].

Further, the claimed, ‘... relaying communication data from a source terminal to a destination terminal; the destination terminal generating a response message; and repeatedly relaying the response message between two of the terminals such that the response message is relayed in a particular direction from a first terminal to a second terminal ...’, is not disclosed by Mohseni, but in an analogous art Masood teaches that: “... In step 6 the first host computer determines the number of identical prepared messages which must be sent to reasonably insure one reaches the final destination and thereafter, sends one prepared message to each passing vehicle containing like host computers until this value is reached ...” [see Fig. 4 and Column 6, lines 36 - 41].

Further, the claimed, ‘... until the response message reaches an intermediary terminal near the source terminal in a vehicle traveling along a planned driving route and, after the response message reaches the intermediary terminal near the source terminal, the response message is relayed in any direction; wherein the response message reaches the source vehicle ...’, is not disclosed by Mohseni, but in an analogous art Logsdon teaches that: “... The intermediary mobile device forwards information destined to/received from the distressed mobile device to its intended destination ...” [Column 2, lines 22 - 24], and further that: “... mobile device multicasts a distress packet to any other mobile devices which may be in range of the distressed mobile device. All mobile devices which are

within range will receive the distress packet. Those mobile devices which are willing to serve as an intermediary send a response packet back to the distressed mobile device indicating such. The distressed mobile device then selects an intermediary device from those mobile devices which have responded. The selected mobile device is programmed to forward to the appropriate destination any packets which are received from or destined to the distressed mobile device ...” [Column 2, lines 29 - 40]. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the disclosure of Mohseni with the teachings of Masood and the teachings of Logsdon to relay a response message from a destination terminal to a source terminal via an intermediary terminal, by repeatedly relaying the response message in any direction from the intermediary terminal to reach the source vehicle.

11.5. *In regard to Claim 22.* The claimed, ‘... particular direction is towards an estimated driving position on the planned driving route, wherein the vehicle having the source terminal travels toward the estimated driving position with an estimated time of response arrival at which the response message will approximately reach the source terminal, and an intermediary terminal which receives the response message is determined based upon the position of the destination terminal and the estimated driving position ...’, is essentially the same inventive concept as claimed in Claim 11, and is identified as a “particular direction” instead of “second particular direction” corresponding to the method of Claim 11. Therefore, Claim 22 is rejected for the same reasons as set forth in the discussions for Claim 11 above.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as follows:

- Ying (US Pat. No. 6,757,521), discloses a system and method for locating and communicating between portable devices.
- Varadharajan et al. (US Pat. No. 5,887,063), discloses a communication system between portable devices and a remote network using a shared security key.
- Caci (US Pat. No. 6,154,658), discloses a vehicle information and communication system that uses GPS data.
- Breed et al. (US Pat. No. 6,405,132), discloses a communication system using GPS ranging signals relating to a host vehicle's position.

The references of Mohseni, Masood et al., Logsdon et al. and McCrady et al. are cited for illustrating various data communication systems that have features and inventive concepts similar to the applicant's "Communication-data relaying method and inter-vehicle communication system". It is noted that the Masood et al. reference is cited by the applicant in the Information Disclosure Statement (Form 1449).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Santanu Chatterjee, whose telephone no. is 571-272-5890. The examiner can normally be reached on Mon. – Fri., 8am – 5pm.

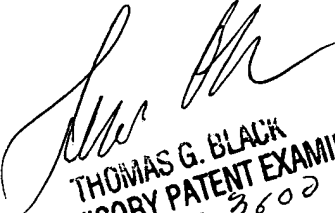
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The FAX phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Examiner's Initials: SC

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